

REMARKS

Applicants have thoroughly considered the Examiner's remarks and the Application has been amended in light thereof. Claims 1 to 23 are presented in the Application for further examination. Claims 7, 19, and 23 have been amended by this Amendment B. Reconsideration of the Application's claims as amended and in view of the following remarks is respectfully requested. The following remarks will follow the sequence of the Application and the Office action.

The Examiner rejected claims 7, 19, 22, and 23 under 35 U.S.C. 102(b) as being anticipated by Briscoe. Applicants do not agree with the Examiner's interpretation and conclusions with regard to Briscoe. As the Examiner notes, Briscoe discloses that an "operator sets a predetermined pressure and from that, the brush is lowered and forced into contact with the floor until the pressure is achieved. For a given brush, this pressure will be achieved when the brush head is held a certain distance from the floor. (Office action section 9, page 4). As the Examiner notes, the processor holds this brush pressure at a constant value. Briscoe discloses and teaches controlling the brush head based only on pressure, not on position or distance. In Briscoe, pressure is detected and controlled, the position of the brush head and the distance between the brush head and the surface is not controlled. The Examiner correctly states that "if the pressure exceeds the set value, the brush will be lifted to reduce the pressure." Briscoe's pressure control system adjusts the position of the brush head assembly relative to the surface based on the pressure detected by the pressure sensor in relation to the pressure selected by the operator. In Briscoe, the length and stiffness of the brushes directly impact the adjustments to the head assembly since the pressure sensor detects the pressure exerted between the surface and the head assembly. While distance may vary in Briscoe, it is not measured or controlled as Briscoe does not teach or disclose a sensor for detecting a position. Additionally, changes to the distance between the head assembly and the surface without a change in pressure does not result in Briscoe adjusting the head assembly. Furthermore, in Briscoe, as the brushes wear down or the

brushes become less stiff due to use or the amount of cleaning fluid being applied at any particular instance, the system adjusts the brush head assembly pressure to provide for a consistent pressure being applied by the brush to the surface.

The Examiner incorrectly states that Briscoe's processor holds a distance at a constant value. Additionally, the Examiner incorrectly concludes that "a constant height between the brush and the floor is achieved." By monitoring and controlling pressure, Briscoe will reposition the brush head based on a change in the brush length or stiffness, which may occur during the operation of the floor cleaning system based on such aspects as the amount of cleaning liquid or water used at any particular time of operation. In concluding this, the Examiner fails to recognize that Briscoe's system monitors and controls pressure, not position and distance as recited by the Applicants' claims.

In contrast, Applicants' invention is based on detecting and controlling the position of the brush head relative to the surface and therefore the distance between the brush head and the surface. Applicants' system does not make adjustments during operation based on factors which affect the pressure applied by the brush head to the surface. As the brushes wear down or become less stiff, in the Applicants' system, the position of the brush head assembly is not adjusted as the length of the brush, stiffness of the brush, or pressure applied by the brush head to the surface are not detected and controlled. The Applicants' system recites a position control which detects and controls the distance between the brush head assembly and the surface and controls the head assembly based on variations in the surface to consistently maintain a position or distance. As a position detector or control is not disclosed or taught by Briscoe, Applicants request that the Examiner withdraw his rejection of claims 7, 19, 22, and 23.

While the Applicants' do not agree with the Examiner's interpretation of Briscoe, Applicants have amended independent claims 7, 19, and 23, as suggested by the Examiner, to recite that Applicants' invention controls the position of the brush head "independent of the brush

length and brush stiffness." With this amendment to the claims, Applicants believe, based on the suggestion by the Examiner, that claims 7, 19, and 23 are now allowable.

Claim 22 was also rejected by the Examiner. Claim 22 depends from claim 19. Claim 19 recites a position control for indicating the position of the device relative to the surface or range of head positions of the device relative to the surface and a controller responsive to the position control for selectively actuating the actuator to maintain the device in the head position or within the range of head positions as indicated by the position control independent of the brush length or brush stiffness. Claim 22 further recites a pressure sensor detecting the pressure of the device on the surface and a pressure control in combination with the position control elements of claim 19. The combination of indicating and controlling distance and pressure is a combination not disclosed or taught by Briscoe's monitoring and controlling based on pressure. As such, the Examiner should withdraw his rejection of claim 22. Furthermore, claim 22 depends from claim 19 and should be allowed for at least the same reasons as claim 19.

The Examiner rejected claim 18 under 35 U.S.C. 103(a) as being unpatentable over Briscoe.

First, the Examiner raised the issue of whether the subject matter of the various claims was commonly owned at the time the inventions were made. As addressed in Amendment A in the present application, there was common ownership of each of the claimed inventions at the time the present inventions were made. It is also noted that the inventors have assigned their invention to ALTO as indicated by the assignment filed with the Patent Office at reel 11318, frame 51.

With regard to claim 18, the Examiner correctly notes that Briscoe is silent as to the type of tire employed in a cleaning vehicle. However, in one embodiment of Applicants' invention, pneumatic tires have been found to provide flexibility. As noted in the Applicants' specification

in the paragraph beginning on line 6 of page 22, "it is preferable to support the vehicle 126 by a plurality of pneumatic tires 188 rather than some type of rigid tire or other rigid structure. It has been found that such pneumatic tires 188 provide an added level of flexibility with regard to the positioning of the brush 106 on the surface of floor 108. This added flexibility allows the brush 106 to more easily float on the surface of the floor 108 providing a more even cleaning operation. In the embodiment illustrated in Figs. 1 and 2, pneumatic tire may obviate the need for a compressible member and make the spring 40 of Fig. 1 and the spring 68 of Fig. 2 optional." As this embodiment of the Applicants' invention is based on positioning the brush assembly relative to the surface, the specific type of tires, pneumatic tires, used during the operation of the system assists the system in maintaining the position of head assembly relative to the surface. As Briscoe does not disclose or teach this element or its unexpected result, the Examiner should withdraw his rejection of claim 18. Furthermore, as claim 18 depends from claim 7, claim 18 should be allowed for at least the same reasons as claim 7.

MARKED-UP VERSION SHOWING CHANGES MADE**IN THE CLAIMS:**

Please make the following changes to claims 7, 19, and 23.

7. An apparatus for use on a surface and responsive to an operator, said apparatus comprising:

- a vehicle adapted to ride on the surface;
- a head assembly adapted to carry a device for engaging and treating the surface;
- an actuator on the vehicle supporting the head assembly over the surface and adapted to raise and lower the head assembly relative to the surface;
- a sensor detecting a position of the head assembly relative to the surface;
- a head position control, responsive to input from the operator, indicating a desired position of the head assembly relative to the surface; and
- a driving circuit responsive to the head position control and responsive to the sensor for energizing the actuator to raise and lower the head assembly so that the position of the head assembly relative to the surface as detected by the sensor corresponds to the desired position as indicated by the head position control thereby controlling the relative engagement between the head assembly and the surface independent of the brush length and brush stiffness and thereby controlling the treatment of the surface by the head assembly.

19. An apparatus for use on a surface and responsive to an operator, said apparatus comprising:

- a head assembly adapted to carry a device for engaging the surface;
- an actuator raising and lowering the head assembly relative to the surface;
- a position control responsive to operator input for indicating a head position of the device relative to the surface or range of head positions of the device relative to the surface, said head

position or said range of head positions indicating a distance or range of distances, respectively, between the device and the surface; and

a controller responsive to the position control for selectively actuating the actuator to maintain the device in the head position or within the range of head positions as indicated by the position control independent of the brush length and brush stiffness.

23. An apparatus for use on a surface and responsive to an operator, said apparatus comprising:

a head assembly adapted to carry a device for engaging the surface;

an actuator raising and lowering the head assembly relative to the surface;

a position control responsive to operator input for indicating a repeatable head position of the device relative to the surface or a repeatable range of head positions of the device relative to the surface, said repeatable head position or said repeatable range of head positions indicating a distance or range of distances, respectively, between the device and the surface; and

a controller responsive to the position control for selectively actuating the actuator to maintain the device in the repeatable head position or within the repeatable range of head positions as indicated by the position control independent of the brush length and brush stiffness.

CONCLUSION

In view of the foregoing remarks, Applicants respectfully request the reconsideration and reexamination of this application. It is felt that a full and complete response has been made to the Office action and, as such, places the application and the pending claims in condition for allowance. Such allowance is hereby respectfully requested. If the Examiner feels, for any reason, that a personal interview will expedite the prosecution of this application, he is invited to telephone the undersigned.

It is believed that no fees are due at this time. If the Commissioner determines there are additional fees not herein provided, the Commissioner is hereby authorized to charge any required government fees to Deposit Account No. 19-1345.

Respectfully submitted,



Frank R. Agovino, Reg. No. 27,416
SENNIGER, POWERS, LEAVITT & ROEDEL
One Metropolitan Square, 16th Floor
St. Louis, Missouri 63102
(314) 231-5400

Express Mail Label No. EL 946584648 US

FRA/DLH

B